<WHAT IS CLAIMED IS:>

1. An analog-to-digital conversion circuit, comprising:

a group of conversion units including at least two stages of conversion units each of which produces a digital value of several bits in stages according to an input analog voltage; and

a plurality of power sources which supply voltages to the group of conversion units, wherein

in the group of conversion units, a first stage converts a predetermined number of bits from the most significant bit, and second and subsequent stages convert lower-order bits than the predetermined number of bits, and

the plurality of power sources supply voltages to the conversion units in the second and subsequent stages, the voltages being lower than the voltage supplied to the conversion unit in the first stage.

2. An analog-to-digital conversion circuit, comprising:

a group of conversion units including at least two stages of conversion units each of which produces a digital value of several bits in stages according to an input analog voltage; and

a power source which supplies a voltage to the group of conversion units, wherein

in the group of conversion units, a first stage converts a predetermined number of bits from the most significant bit,

and second and subsequent stages convert lower-order bits than the predetermined number of bits, and

in the group of conversion units, a voltage supplied to a stage by the power source is lower than that supplied to its preceding stage.

3. An analog-to-digital conversion circuit, comprising:

a group of conversion units including at least two stages of conversion units each of which produces a digital value of several bits in stages according to an input analog voltage;

a power source which supplies a voltage to the group of conversion units; and

a voltage step-up unit which steps up the voltage, wherein

in the group of conversion units, a first stage converts a predetermined number of bits from the most significant bit, and second and subsequent stages convert lower-order bits than the predetermined number of bits, and

the step-up unit steps up the voltage to be supplied from the power source to at least part of the conversion unit in the first stage into a higher voltage.

4. The analog-to-digital conversion circuit according to claim 1, wherein

in the group of conversion units, a conversion unit to which the power source supplies a lower voltage is designed to have a lower voltage range for an analog signal.

5. The analog-to-digital conversion circuit according to claim 2, wherein

in the group of conversion units, a conversion unit to which the power source supplies a lower voltage is designed to have a lower voltage range for an analog signal.

6. The analog-to-digital conversion circuit according to claim 3, wherein

in the group of conversion units, a conversion unit to which the power source supplies a lower voltage is designed to have a lower voltage range for an analog signal.

7. An image processing circuit comprising:

an image sensor which receives light from a subject to convert the light into an electric signal;

an auto gain control which amplifies the electric signal received from the image sensor;

an analog-to-digital converter including at least two stages of conversion units, each of which produces a digital value of several bits in stages according to an amplified analog signal, a first stage converting a predetermined number of bits from the most significant bit, second and subsequent stages converting lower-order bits than the predetermined number of bits;

a digital signal processor which performs image processing on a converted digital signal;

a first voltage source which supplies a relatively high

voltage; and

a second voltage source which supplies a relatively low voltage, wherein

the first voltage source supplies a voltage to the auto gain control,

the second voltage source supplies a voltage to the digital signal processor,

the first voltage source and the second voltage source supply voltages to the analog-to-digital converter, and

the first voltage source supplies a voltage to the first stage of a conversion unit while the second voltage source supplies a voltage to the second and subsequent stages of conversion units.

8. An image processing circuit comprising:

an image sensor which receives light from a subject to convert the light into an electric signal;

an auto gain control which amplifies the electric signal received from the image sensor;

an analog-to-digital converter including at least two stages of conversion units, each of which produces a digital value of several bits in stages according to an amplified analog signal, a first stage converting a predetermined number of bits from the most significant bit, second and subsequent stages converting lower-order bits than the predetermined number of bits;

a digital signal processor which performs image processing on a converted digital signal,

a first voltage source which supplies a relatively high voltage, and

a second voltage source which supplies a relatively low voltage, wherein

the first voltage source supplies a voltage to the auto gain control,

the second voltage source supplies a voltage to the digital signal processor,

the first voltage source and the second voltage source supply voltages to the analog-to-digital converter, and

in the at least two stages of conversion units, a voltage supplied to a stage is lower than that supplied to its preceding stage.

9. An image processing circuit comprising:

an image sensor which receives light from a subject to convert the light into an electric signal;

an auto gain control which amplifies the electric signal received from the image sensor;

an analog-to-digital converter including at least two stages of conversion units, each of which produces a digital value of several bits in stages according to an amplified analog signal, a first stage converting a predetermined number of bits from the most significant bit, second and subsequent

stages converting lower-order bits than the predetermined number of bits;

a digital signal processor which perform image processing a converted digital signal;

a first voltage source which supplies a relatively high voltage;

a second voltage source which supplies a relatively low voltage; and

a step-up unit which steps up the voltage, wherein

the first voltage source supplies a voltage to the auto gain control,

the second voltage source supplies a voltage to the digital signal processor,

at least one of the first voltage source and the second voltage source supplies a voltage to the analog-to-digital converter, and

the step-up unit steps up the voltage to be supplied from the voltage source to at least part of the conversion unit in the first stage.

10. The image processing circuit according to claim 7, wherein

in the at least two stages of conversion units, a conversion unit to which the voltage source supplies a lower voltage is provided with a lower voltage range for an analog signal.

11. The image processing circuit according to claim 8, wherein

in the at least two stages of conversion units, a conversion unit to which the voltage source supplies a lower voltage is provided with a lower voltage range for an analog signal.

12. The image processing circuit according to claim 9, wherein

in the at least two stages of conversion units, a conversion unit to which the voltage source supplies a lower voltage is provided with a lower voltage range for an analog signal.

13. An analog-to-digital conversion circuit comprising:

a group of conversion units including at least two stages of conversion units each for producing a digital value of several bits in stages in accordance with an input analog voltage; and

a plurality of power sources for supplying voltages to the group of conversion units, wherein

in the group of conversion units, the first stage converts a predetermined number of bits from the most significant bit, and the second and subsequent stages convert lower-order bits than the predetermined number of bits, and

the plurality of power sources supply a voltage to part of the conversion unit in the first stage, the voltage being

higher than a voltage supplied to the conversion units in the second and subsequent stages.

14. The analog-to-digital conversion circuit according to claim 13, wherein

the conversion unit in the first stage includes an AD conversion circuit, a DA conversion circuit, a subtraction circuit, an amplification circuit, and a sample and hold circuit, and

the plurality of power sources supply a voltage only to the sample and hold circuit included in the conversion unit in the first stage, the voltage being higher than a voltage supplied to the conversion units in the second and subsequent stages.

15. The analog-to-digital conversion circuit according to claim 14, wherein

the conversion unit in the first stage includes a plurality of sample and hold circuits, and

the plurality of power sources supply a voltage only to the plurality of sample and hold circuits included in the conversion unit in the first stage, the voltage being higher than a voltage supplied to the conversion units in the second and subsequent stages.

16. The analog-to-digital conversion circuit according to claim 13, wherein

in the group of conversion units, a circuit to which the

power source supplies a lower voltage is designed to have a narrower voltage range for an analog signal.

17. The analog-to-digital conversion circuit according to claim 14, wherein

in the group of conversion units, a circuit to which the power source supplies a lower voltage is designed to have a narrower voltage range for an analog signal.

18. The analog-to-digital conversion circuit according to claim 15, wherein

in the group of conversion units, a circuit to which the power source supplies a lower voltage is designed to have a narrower voltage range for an analog signal.